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Tier II Data Validation Report

Client: Chevron Environmental Management Company – Chevron Cincinnati Facility	Laboratory: Lancaster Laboratories, Inc., of Lancaster, PA
Project Name: Routine Final Remedy Monitoring	Sample Matrix: Water
Project Number: 500-017-012	Sample Start Date: August 11, 2009
Date Validated: September 2, 2009	Sample End Date: August 12, 2009
Parameters Included: Volatile Organic Compounds (VOC) by Solid Waste-846 (SW-846) Method 8260B and Dissolved Metals by SW-846 Method 6010B	
Laboratory Project ID: 1157447	
Data Validator's Name: Jessica Swanson, Environmental Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services group on the analytical data report package generated by Lancaster Laboratories, Inc., of Lancaster, Pennsylvania evaluating samples from the Chevron-Cincinnati site located in Hooven, Ohio.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values of samples from laboratory duplicate pairs. Laboratory accuracy was established by reviewing the demonstrated percent recoveries of matrix spike (MS) and matrix spike duplicate (MSD) samples, and of laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) to verify that none of the data were biased. Additionally, field accuracy was established by collecting field and trip, and equipment blanks to monitor for possible ambient or cross contamination during sampling. Method compliance was established by reviewing holding times, detection limits, surrogate recoveries, method blanks, and the LCS and LCSD percent recoveries against method specific requirements. Completeness was evaluated by determining the overall ratio of the number of samples planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody, laboratory analytical methods, and any other necessary documents associated with this analytical data set.

Data were evaluated in general accordance with validation criteria set forth in the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review, document number USEPA-540-R-08-01, June 2008 with additional reference to USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, document number EPA 540/R-99-008 of October 1999 and the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540R-04-004, October 2004. Review of duplicates is conducted in accordance with USEPA Region 1 Laboratory Data Validation Function Guidelines for Evaluation of Organic Analysis, December 1996.

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SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
Field_Blank, 081109	5748300
MW-133, 081109	5748301
MW-133, 081109 Filtered	5748302
MW-35, 081109	5748303
MW-35, 081109 Filtered	5748304
MW-138, 081209	5748305
MW-138, 081209 Filtered	5748306
MW-139, 081209	5748307
MW-139, 081209 Filtered	5748308
MW-142, 081209	5748309
MW-142, 081209 Filtered	5748310
Trip_Blank, 081209	5748311

The samples were analyzed for client-specified analytes. Chain-of-custody (COC) completeness is included in Section #3. The laboratory data were reviewed to evaluate compliance with the required methods and the quality of the reported data. A leading check mark (✓) indicates that the referenced data were deemed acceptable. A preceding crossed circle (⊗) signifies problems with the referenced data that may have warranted attaching qualifiers to the data.

- ✓ Data Completeness
- ✓ COC Documentation
- ✓ Holding Times and Preservation
- ✓ Laboratory Blanks
- ✓ System Monitoring Compounds (i.e. Surrogates)
- ✓ Laboratory Control Samples/Laboratory Control Sample Duplicates (LCS/LCSD)
- ✓ Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- ✓ Laboratory Duplicates
- ✓ Field and Trip Blanks

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Section #2.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data which are not qualified meet the site data quality objectives. If values are assigned qualifiers other than an R, the data may be used for site evaluation, with the reasons for qualification being given consideration when interpreting sample concentrations.
Data were qualified with J data flags by the laboratory if the result was greater than or equal to the method detection limit (MDL) but less than the limit of quantitation (LOQ). Laboratory J flags were preserved in the data and included in the Data Qualification Summary table at the end of this report.

Data qualifiers used during this validation included:

J – Estimated concentration

Data Completeness

The analyses appeared to be performed as requested on the chain-of-custody records. The associated samples were received by the laboratory and appeared to be analyzed properly. No data points were rejected. The data completeness measure for this data package is 100%.

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VALIDATION CRITERIA CHECKLIST	
1. Did the laboratory identify any non-conformances related to the analytical data?	Yes
Comments: The laboratory noted the following comments related to this data set. The filtered samples were filtered in the field for metals. For sample MW-142, 081209, the reporting limits for the Gas Chromatography/Mass Spectrometry (GC/MS) volatile compounds by Method 8260B were raised due to the level of non-target compounds.	
2. Were data qualification flags used by the laboratory? If yes, define.	Yes
Comments: The laboratory used the following qualification flags with this data set. J – Estimated Value (1) - -The result for one or both determinations was less than five times the limit of quantitation (LOQ).	
3. Were sample chain-of-custody forms complete?	Yes
Comments: The COC record from field to laboratory was complete. Custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. There was a note on the COC to see attached analyte list. Requested analyses were included on the COC with specific analytes on the list.	
4. Were detection limits in accordance with the QAPP, permit, or method, or indicated as acceptable by the Tier I validator?	Yes
Comments: The detection limits were indicated to be acceptable by the Tier I validator. For sample MW-142, 081209, the reporting limits for the GC/MS volatile compounds by Method 8260B were raised due to the level of non-target compounds. This resulted in a two times dilution for the VOC analyses in sample MW-142, 081209. The final usability of the data with respect to dilutions will be determined by the project manager.	
5. Were the requested analytical methods in compliance with the QAPP, permit, or COC?	Yes
Comments: As indicated by the Tier I validation, the requested analytical methods were performed in accordance with the COC form.	
6. Were samples received in good condition within method specified requirements?	Yes
Comments: Samples were received on ice, intact, and in good condition with cooler temperatures within the 4°C +/- 2°C acceptance range at 2.0°C, as noted on the Environmental Sample Administration Receipt Documentation Log. Custody seals were present and intact on the shipping cooler.	
7. Were samples analyzed within method specified or technical holding times?	Yes
Comments: The samples were analyzed within method specified holding times.	
8. Were reported units appropriate for the associated sample matrix/matrices and method(s) of analyses?	Yes
Comments: Sample results were reported in units of µg/L and mg/L. These units are appropriate for the methods noted and the water matrix.	
9. Do the laboratory reports include all constituents requested to be reported as indicated by the Tier I validator?	Yes
Comments: As indicated by the Tier I validator, the laboratory report included the constituents requested to be reported.	
10. Was there indication from the laboratory that the initial or continuing calibration verification results were within acceptable limits?	N/A
Comments: Initial and continuing calibration data were not included as part of this data set; however, these data are assumed to be acceptable as the laboratory did not note that any calibration verification results were outside acceptable limits.	
11. Was the total number of method blank samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?	Yes
Comments: The total number of method blank samples prepared was equal to at least 5% of the total number of samples.	

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VALIDATION CRITERIA CHECKLIST	
12. Were method blank detections reported for this data set?	No
Comments: There were no detections of target analytes in the method blank samples.	
13. Was the total number of matrix spike samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?	Yes
Comments: The total number of matrix spike samples prepared was equal to at least 5% of the total number of samples. The MS samples for VOC batch Y092261AA were prepared from sample MW-35, 081109. The MS/MSD sample pairs for dissolved metals batch 092261848006 were prepared from a sample not associated with this data set.	
14. Were matrix spike recoveries within laboratory-specified limits?	Yes
Comments: The MS/MSD recoveries were within laboratory-specified limits for both project specific and non-project batches. The MS and MSD recoveries and RPD values for these non-project samples were considered but matrix similarity to project samples could not be guaranteed.	
15. Was the total number of laboratory control samples analyzed equal to at least 5% of the total number of samples, or analyzed as required by the method?	Yes
Comments: The total number of laboratory control samples analyzed was equal to at least 5% of the total number of samples.	
16. Were laboratory control recoveries within laboratory-specified limits?	Yes
Comments: The LCS and LCSD recoveries were within laboratory-specified limits.	
17. Were surrogate recoveries within laboratory control limits?	Yes
Comments: Surrogate recoveries were within laboratory control limits.	
18. Was the number of equipment, trip, or field blanks collected equal to at least 10% of the total number of samples, or as required by the project guidelines, QAPP, SAP, or permit, or as indicated by the Tier I validator?	Yes
Comments: There were one trip blank and one field blank collected with samples of this data set.	
19. Were detections found in trip blanks, equipment blanks, or field blanks?	No
Comments: There were no detections reported in the blank samples	
20. Were the field duplicates collected equal to at least 10% of the total number of samples, or as required by the project guidelines, QAPP, SAP, or permit, or as indicated by the Tier I validator?	No
Comments: Field duplicates were not collected with this data set.	
21. Were field duplicate RPD values less than the upper RPD limit (soil [50%], water [30%], or air/vapor [25%]), as specified by the laboratory or method?	N/A
Comments: Field duplicates were not collected with samples of this data set.	
22. Were laboratory duplicate RPD values within laboratory-specified limits?	Yes
Comments: Laboratory duplicates were prepared for dissolved metals batch 092261848006 from a sample not associated with this data set. Laboratory duplicates were within laboratory-specified limits and were qualified as (1) by the laboratory indicating that the result for one or both determinations was less than five times the LOQ.	

DATA QUALIFICATION SUMMARY

Analyte	Field Sample ID	Lab Sample ID	Result	Units	Reviewer Qualifier	Reviewer Qualifier Reason
Arsenic, Dissolved	MW-139,081209	5748308	0.0164	mg/L	J	Flagged by the Lab: Result between MDL and RL.
Arsenic, Dissolved	MW-142,081209 Filtered	5748310	0.0172	mg/L	J	Flagged by the Lab: Result between MDL and RL.
Xylenes, Total	MW-139,081209	5748307	5	µg/L	J	Flagged by the Lab: Result between MDL and RL.

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